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ENVIRONMENTAL MANAGEMENT, INC.

April 15, 2003

Project No.: B30-01G

Mr. Don Pettit
Oregon Department of Environmental Quality
2020 SW Fourth Ave, Suite 400
Portland, OR 97201

Re: Groundwater Monitoring Report/Project Update Report

First Quarter 2003

Kinder Morgan Liquid Terminals, LLC

Linnton Terminal

Portland, Oregon

DEQ No.: WPMVC-WMCVC-NWR-00-17

USEPA SF



1288986

Dear Mr. Pettit:

KHM Environmental Management, Inc. (KHM) has prepared this groundwater monitoring report on behalf of Kinder Morgan Liquid Terminals, LLC (KMLT) for the KMLT Linnton Terminal located at 11400 NW St Helens Road in Portland, Oregon (Figure 1). On January 28 and 29, 2003, 28 groundwater monitoring wells and piezometers were monitored, and 14 wells were sampled by KHM. In addition, monthly separate phase hydrocarbon (SPH) recovery was performed on each well containing SPH during the reporting period. The approximate site boundaries, site structures, and the approximate locations of the monitoring wells are presented in Figure 2. Quarterly groundwater monitoring is currently being conducted at the site in accordance with the Remedial Investigation (RI) Work Plan dated February 2002. Field procedures were performed in accordance with KHM's standard operating procedures for quality assurance and quality control.

FIRST QUARTER SAMPLING RESULTS

Groundwater monitoring field activities conducted on January 28 and 29, 2003, consisted of collecting water level measurements in Wells MW-1 through MW-18, P-1 through P-5 and RW-1 through RW-5 as well as measuring parameters and collecting samples from Wells MW-1, MW-4 through MW-9 and MW-12 through MW-18. The parameters measured in the wells consisted of water level measurements, pH, dissolved oxygen (DO), specific conductance, and temperature. The static water levels were measured in Wells MW-1 through MW-18, P-1 through P-5 and RW-1 through RW-5 on January 28, 2003.

April 15, 2003

Page 2

Water level measurements were obtained by slowly lowering an electronic water level indicator into the well until the instrument indicated that the groundwater surface had been encountered. The measurement was made from a location permanently marked on the top of the casing to within the nearest 0.01 foot. If separate-phase hydrocarbons (SPH) were present in any of the monitoring wells, the thickness of the layer was measured and recorded. Each water level measurement was repeated at least once to verify the accuracy of the initial measurement. All measurements were recorded on field sampling forms (Attachment A). Prior to collecting groundwater samples, each monitoring well was purged of at least three casing volumes of water. All ten wells were purged using clean, disposable bailers and new nylon cord. Prior to sampling, the wells were allowed to recover to approximately 80% or more of static water level. A total volume of approximately 81 gallons of water was purged from the wells. The purge water generated during this monitoring event was transported to Oil Re-refining of Portland, Oregon for recycling at their facility.

After purging each monitoring well, groundwater samples were collected using new disposable bailers. The water samples were placed in laboratory-prepared containers provided by North Creek Analytical (NCA) of Beaverton, Oregon. Each sample was appropriately labeled so as to identify the sample number, project name, facility number, the date and time of sample collection, and the sampler's name. Each sample was immediately placed in a chilled cooler for storage, and samples were transported to the laboratory using strict chain-of-custody protocols.

The groundwater samples were submitted to NCA on January 30, 2003. The water samples were analyzed for gasoline range hydrocarbons by NW TPH-Gx Methods, diesel and heavy oil range hydrocarbons by NW TPH-Dx Methods, benzene, toluene, ethylbenzene, and total xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8021B, polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270M-SIM, and total metals by EPA 6000/7000 Series Methods.

Based on the groundwater level measurements taken during this monitoring event, the groundwater flow direction appears to be generally to the northeast, toward the Willamette River. Generally, the groundwater flow direction is consistent with those of past monitoring events. Figure 2 illustrates the current approximate water level elevation contours and gradient.

Depth to groundwater in the measured wells ranged from 10.11 feet below top of casing in Well MW-16 to 23.81 feet below top of casing in Well MW-5. SPH was detected in eleven of the wells, MW-2, MW-3, MW-10, MW-11, P-4, P-5, and RW-1 through RW-5. The current and historic groundwater elevation data have been summarized in Table 1.

April 15, 2003

Page 3

Benzene was detected above the laboratory MRL in five wells at concentrations ranging from 2.71 micrograms per liter ($\mu\text{g}/\text{L}$) in Well MW-13 to 193 $\mu\text{g}/\text{L}$ in Well MW-9. Concentrations in the Well MW-6 and MW-9 have steadily decreased over the past year. All other monitoring wells are relatively consistent with the past monitoring events.

PAHs were detected above the laboratory MRL in seven wells at concentrations ranging from 0.128 $\mu\text{g}/\text{L}$ of phenanthrene in Well MW-6 to 60.6 $\mu\text{g}/\text{L}$ of flourene in Well MW-1.

Concentrations of six total metals were detected above the laboratory MRL in all sampled wells. Concentrations ranged from 0.00102 mg/L of chromium in Well MW-4 to 0.341 mg/L of barium in Well MW-14. The total metal concentrations were typical of previous sampling events.

Based on a review of the laboratory reports, it appears that the submitted water samples were analyzed within the specified holding times, and that the appropriate quality assurance/quality control (QA/QC) procedures were followed during analysis. A summary of the laboratory analytical results is presented in Tables 2, 3, and 4. A complete copy of the laboratory report and chain-of-custody documentation is included in Attachment B.

ACTIVITIES COMPLETED DURING THE FIRST QUARTER OF 2003

- Quarterly groundwater sampling in selected monitoring wells.
- Monthly SPH removal from Wells MW-2, 3, 10, 11, 19 and RW-1 through RW-5.
- Installation of Wells MW-19 through MW-22 to further delineate the IRAM area.
- High-vacuum pilot test performed on wells with measurable SPH in and around the IRAM area.

ACTIVITIES SCHEDULED FOR THE SECOND QUARTER OF 2003

- Perform monthly SPH removal from wells that have historically contained SPH.
- Sample selected monitoring wells during the 2003 April sampling event (second quarter event).
- Perform weekly inspections of the containment booms in the seep area.
- Prepare and implement a work plan to conduct a pump test in the IRAM area to further assess possible remedial measures.

April 15, 2003

Page 4

- Prepare report on further delineation of the IRAM area investigation.

CONCLUSIONS

Groundwater will continue to be monitored on a quarterly basis. The next sampling event will be conducted during the second quarter 2003.

Please contact Mr. Kelly Kline at (503) 639-8098 if you have any questions regarding this report or any other aspect of this project.

Sincerely,

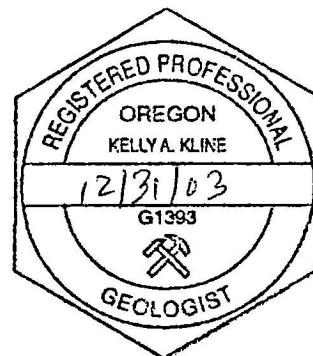
KHM Environmental Management, Inc.



Kristian N. Thordarson
Staff Scientist



Kelly A. Kline, R.G.
Senior Geologist



Attachments: Table 1.- Groundwater Elevation and SPH Data
Table 2 - Groundwater Sample Analytical Results- TPH, BTEX-N
Table 3 - Groundwater Sample Analytical Results- PAHs
Table 4 - Groundwater Sample Analytical Results- Total Metals
Figure 1 - Site Location Map
Figure 2 - Groundwater Elevation Contours and SPH Thickness

Attachment A - Field Forms

Attachment B - Certified Analytical Reports and Chain-of-Custody Documentation

cc: Mr. Steve Osborn, Kinder Morgan Energy Partners
Mr. Eric Conard, Kinder Morgan Energy Partners
Ms. Jeni Crawley, Kinder Morgan Energy Partners (file copy)

TABLE 1
GROUNDWATER ELEVATION AND SPH RECOVERY DATA
 Kinder Morgan Liquid Terminals
 Linnton Terminal
 Portland, Oregon

Well Identification (TOC)	Date Gauged	Depth to Water (ft)	Depth to SPH (ft)	SPH Thickness (ft)	TOC Elevation (ft)	Groundwater Elevation ¹ (ft)	Cumulative SPH Recovered (gallons)
MW-1 (27.98)	02/01/02	13.34	13.34	sheen	27.98	14.64	-
	04/24/02	13.26	13.26	sheen	27.98	14.72	-
	07/29/02	15.82	15.80	0.02	27.98	12.18	0.41
	10/29/02	18.40	18.41	0.01	27.98	9.57	0.56
	11/26/02*	17.91	17.81	0.10	27.98	10.15	-
	01/28/03	15.15	NP	0.00	27.98	12.83	-
MW-2 (28.47)	01/29/02	14.27	13.60	0.67	28.47	14.74	2.50
	04/24/02	13.96	13.37	0.59	28.47	14.98	0.55
	07/29/02	16.50	16.16	0.34	28.47	12.24	1.20
	10/29/02	18.92	18.93	0.01	28.47	9.54	1.30
	11/26/02*	18.82	18.52	0.30	28.47	9.89	-
	01/28/03	16.04	15.70	0.34	28.47	12.70	0.65
MW-3 (28.97)	01/29/02	13.04	12.86	0.18	28.97	16.07	0.25
	04/24/02	13.11	13.00	-	28.97	15.86	0.40
	07/29/02	14.69	14.42	0.27	28.97	14.50	0.55
	10/29/02	16.11	NP	Sheen	28.97	12.86	0.51
	11/26/02*	16.08	15.72	0.36	28.97	13.18	-
	01/28/03	14.15	14.07	0.08	28.97	14.88	0.35
MW-4 (32.88)	02/01/02	17.74	NP	-	32.88	15.14	-
	04/24/02	17.49	NP	-	32.88	15.39	-
	07/29/02	20.19	NP	-	32.88	12.69	-
	10/29/02	22.72	NP	-	32.88	10.16	-
	01/28/03	19.82	NP	-	32.88	13.06	-
	01/31/02	21.73	NP	-	40.08	18.35	-
MW-5 (40.08)	04/24/02	21.76	NP	-	40.08	18.32	-
	07/29/02	23.87	NP	-	40.08	16.21	-
	10/29/02	DRY	NP	-	40.08	DRY	-
	01/28/03	23.81	NP	-	40.08	16.27	-
	02/01/02	16.77	NP	-	36.93	20.16	-
	04/24/02	17.82	NP	-	36.93	19.11	-
MW-6 (36.93)	07/29/02	20.85	NP	-	36.93	16.08	-
	10/29/02	21.51	NP	-	36.93	15.42	-
	01/28/03	19.72	NP	-	36.93	17.21	-
	01/31/02	17.74	NP	-	32.26	14.52	-
	04/24/02	17.81	NP	-	32.26	14.45	-
	07/29/02	20.06	NP	-	32.26	12.20	-
MW-7 (32.26)	10/29/02	22.40	NP	-	32.26	9.86	-
	01/28/03	19.02	NP	-	32.26	13.24	-

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MW-8 (30.06)	02/01/02	17.01	NP	-	30.06	13.05	-
	04/24/02	16.58	NP	-	30.06	13.48	-
	07/29/02	19.32	NP	-	30.06	10.74	-
	10/29/02	20.83	NP	-	30.06	9.23	-
	01/28/03	18.47	NP	-	30.06	11.59	-
MW-9 (30.45)	02/01/02	15.25	NP	-	30.45	15.20	-
	04/24/02	15.49	NP	-	30.45	14.96	-
	07/29/02	16.71	NP	-	30.45	13.74	-
	10/29/02	18.77	NP	-	30.45	11.68	-
	01/28/03	16.35	NP	-	30.45	14.10	-
MW-10 (30.32)	02/01/02	11.84	NP	-	30.32	18.48	-
	04/24/02	14.00	NP	-	30.32	16.32	-
	07/29/02	18.08	17.03	1.05	30.32	13.08	0.50
	10/29/02	20.72	20.86	0.14	30.32	9.49	0.13
	11/26/02*	19.82	19.81	0.01	30.32	10.51	-
MW-11 (35.03)	01/28/03	13.84	13.61	0.23	30.32	16.66	0.20
	01/29/02	19.06	NP	-	35.03	15.97	0.17
	04/24/02	18.91	18.48	0.43	35.03	16.46	0.25
	07/29/02	22.02	20.75	1.27	35.03	14.03	0.95
	10/29/02	23.20	25.50	2.30	35.03	9.99	1.95
	11/26/02*	25.10	23.05	2.05	35.03	11.57	-
MW-12 (34.03)	01/28/03	21.00	20.65	0.35	35.03	14.31	0.45
	01/31/02	14.85	NP	-	34.03	19.18	-
	04/24/02	15.32	NP	-	34.03	18.71	-
	07/29/02	16.77	NP	-	34.03	17.26	-
	10/29/02	17.99	NP	-	34.03	16.04	-
	01/28/03	16.21	NP	-	34.03	17.82	-
MW-13 (35.81)	01/31/02	17.67	NP	-	35.81	18.14	-
	04/24/02	18.35	NP	-	35.81	17.46	-
	07/29/02	19.35	NP	-	35.81	16.46	-
	10/29/02	25.42	NP	-	35.81	10.39	-
	01/28/03	20.52	NP	-	35.81	15.29	-
MW-14 (36.54)	01/31/02	17.71	NP	-	36.54	18.83	-
	04/24/02	18.42	NP	-	36.54	18.12	-
	07/29/02	21.47	NP	-	36.54	15.07	-
	10/29/02	23.99	NP	-	36.54	12.55	-
	01/28/03	20.62	NP	-	36.54	15.92	-

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MW-15 (37.15)	01/31/02	15.12	NP	-	37.15	22.03	-
	04/24/02	16.13	NP	-	37.15	21.02	-
	07/29/02	19.93	NP	-	37.15	17.22	-
	10/29/02	22.59	NP	-	37.15	14.56	-
	01/28/03	18.26	NP	-	37.15	18.89	-
MW-16 (38.95)	01/31/02	8.91	NP	-	38.95	30.04	-
	04/24/02	11.04	NP	-	38.95	27.91	-
	07/29/02	11.93	NP	-	38.95	27.02	-
	10/29/02	12.75	12.85	0.10	38.95	26.12	0.11
	11/26/02*	12.05	12.00	0.05	38.95	26.94	-
MW-17 (36.57)	01/28/03	10.11	NP	-	38.95	28.84	-
	01/31/02	16.93	NP	-	36.57	19.64	-
	04/24/02	17.83	NP	-	36.57	18.74	-
	07/29/02	20.83	NP	-	36.57	15.74	-
	10/29/02	23.38	NP	-	36.57	13.19	-
MW-18 (36.66)	01/28/03	19.87	NP	-	36.57	16.70	-
	04/24/02	19.41	NP	-	36.66	17.25	-
	07/30/02	22.21	NP	-	36.66	14.45	-
	10/29/02	24.71	NP	-	36.66	11.95	-
	01/28/03	21.20	NP	-	36.66	15.46	-
P-1 (37.89)	01/31/02	-	NP	-	37.89	-	-
	04/24/02	19.31	NP	-	37.89	18.58	-
	07/30/02	19.72	NP	-	37.89	18.17	-
	10/29/02				Unable to Locate		
	01/28/03	19.67	NP	-	37.89	18.22	-
P-2 (36.54)	01/31/02	-	NP	-	36.54	-	-
	04/24/02	13.99	NP	-	36.54	22.55	-
	07/30/02	15.55	NP	-	36.54	20.99	-
	10/29/02	16.52	NP	-	36.54	20.02	-
	01/28/03	14.66	NP	-	36.54	21.88	-
P-3 (33.53)	01/29/02	16.93	NP	-	33.53	16.60	-
	04/24/02	17.58	NP	-	33.53	15.95	-
	07/30/02	18.90	NP	-	33.53	14.63	-
	10/29/02	19.68	NP	-	33.53	13.85	-
	01/28/03	18.16	NP	-	33.53	15.37	-
P-4 (31.75)	01/29/02	16.60	NP	-	31.75	15.15	-
	04/24/02	15.91	NP	-	31.75	15.84	-
	07/30/02	17.18	16.90	0.28	31.75	14.79	-
	10/29/02	22.26	NP	-	31.75	DRY	-
	01/28/03	18.08	17.98	0.10	31.75	13.75	-

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Well Identification (TOC)	Date Gauged	Depth to Water (ft)	Depth to SPH (ft)	SPH Thickness (ft)	TOC Elevation (ft)	Groundwater Elevation ¹ (ft)	Cumulative SPH Recovered (gallons)
P-5 (29.75)	01/29/02	14.41	NP	-	29.75	15.34	-
	04/24/02	14.40	NP	-	29.75	15.35	-
	07/30/02	16.35	16.31	0.04	29.75	13.43	-
	10/29/02	18.09	18.17	0.08	29.75	11.60	-
	01/28/03	14.96	14.95	0.01	29.75	14.80	-
RW-1 (28.28)	10/30/02	19.36	NP	-	28.28	8.92	0.65
	11/26/02*	18.92	18.58	0.34	28.28	9.63	-
RW-2 (27.97)	01/28/03	16.19	15.94	0.25	28.28	12.29	1.65
	10/30/02	19.48	NP	-	27.97	8.49	0.90
	11/26/02*	18.93	18.82	0.11	27.97	9.13	-
RW-3 (27.71)	01/28/03	19.77	15.86	3.91	27.97	11.33	17.25
	10/30/02	22.11	19.50	2.61	27.71	7.69	13.50
	11/26/02*	22.96	18.81	4.15	27.71	8.07	-
RW-4 (27.25)	01/28/03	22.58	15.98	6.60	27.71	10.41	30.00
	10/30/02	20.27	NP	-	27.25	6.98	-
RW-5 (27.11)	01/28/03	18.00	16.58	1.42	27.25	10.39	7.50
RW-5 (27.11)	10/30/02	20.32	NP	-	27.11	6.79	0.01
RW-5 (27.11)	01/28/03	15.95	NP	Sheen	27.11	11.16	0.05

NOTES:

NP = No Measurable Product

¹ = Elevation relative to 1988 North American Vertical Datum (NAVD)

- = Not measured, not analyzed, not sampled or not applicable

Groundwater elevations corrected for product thickness using formula:

W - (0.8 x (DTW - DTP)) where 0.8 is the density of the SPH

* = Additional RI Sampling

TABLE 2
GROUNDWATER ANALYTICAL RESULTS - TPH BTEX
 Kinder Morgan Liquid Terminals
 Linnton Terminal
 Portland, Oregon

Sample ID	Sample Date	Benzene (µg/L)	Ethyl- benzene (µg/L)	Gasoline (µg/L)	Naph- thalene (µg/L)	Toluene (µg/L)	Xylene (total) (µg/L)	Diesel (µg/L)	Heavy Oil (µg/L)
MW-1	02/01/02	2.50 U	2.50 U	2610	31.5	2.50 U	5.00 U	NA	NA
	11/26/2002*	1.00 U	1.00 U	797	2.00 U	1.00 U	3.00 U	30000	3700
	01/29/03	1.00 M	1.00 M	3610	20.0 M	1.00 M	2.00 M	118000	13700
MW-2	11/26/2002*	1.00 U	1.00 U	1350	23.3	1.00 U	3.00 U	148000	14100
MW-3	11/26/2002*	1.00 U	1.00 U	1280	2.31	1.00 U	3.00 U	198000	500 U
MW-4	02/01/02	0.500 U	0.500 U	884	2.00 U	0.500 U	1.00 M	NA	NA
	05/01/02	2.50 U	2.50 U	2610	31.5 J	2.50 U	5.00 U	NA	NA
	07/29/02	0.500 M	0.500 M	169	0.500 M	0.500 M	1.00 M	12600	500 M
	10/30/02	0.500 M	0.500 M	479	3.50 M	0.500 M	1.00 M	33000	500 M
	01/29/03	0.500 M	0.500 M	326	1.20 M	0.500 M	1.00 M	16900	500 M
MW-4-DUP	10/30/02	0500 M	0.500 M	535	2.00 M	0.500 M	1.00 M	2480	500 M
MW-5	02/01/02	0.500 U	0.500 U	80.0 U	2.00 U	0.500 U	1.00 U	NA	NA
	04/24/02	0.500 U	0.500 U	80.0 U	2.00 U	0.500 U	1.00 M	250 U	500 U
	07/30/02	0.500 M	0.500 M	50.0 M	0.100 M	0.500 M	1.00 M	NA	NA
	01/28/03	0.500 M	0.500 M	80.0 M	0.100 M	0.500 M	1.00 M	563	500 M
MW-6	02/01/02	30.6	12.4	2270	2.00 U	12	11.3	NA	NA
	04/24/02	37.1	6.03	2140	2.00 U	6.34	8.45	250 U	500 U
	07/30/02	16.6	1.92	1730	2.00 M	1.51	5.86	NA	NA
	01/29/03	6.84	1.22	1800	2.00 M	1.52	2.39	250 M	500 M
MW-7	01/31/02	0.500 U	0.500 U	80.0 U	2.00 U	0.500 U	1.00 U	NA	NA
	04/24/02	0.500 U	0.500 U	80.0 U	2.00 U	0.500 U	1.00 U	250 U	500 U
	07/29/02	0.500 M	0.500 M	50.0 M	0.100 M	0.500 M	1.00 M	250 M	500 M
	10/29/02	0.500 M	0.500 M	98.7	0.100 M	0.500 M	1.00 M	250 M	500 M
	01/28/03	0.500 M	0.500 M	80.0 M	0.100 M	0.500 M	1.00 M	250 M	500 M
MW-8	02/01/02	10.8	22.3	2350	4.92	10	8.31	NA	NA
	04/25/02	2.85	13.4	1190	7.64	4.45	4.52	250 U	500 U
	07/29/02	10.2	27.8	1900	41.0	4.02	14.8	3340	500 M
	10/30/02	1.88	3.89	764	0.772	0.691	9.86	1170	500 M
	01/29/03	15.8	27.6	2340	5.89	4.80	8.76	3390	500 M
MW-9	02/01/02	357	2.50 M	1730	10.0 U	4.48	5.00 M	NA	NA
	04/25/02	312	5.47	1360	10.0 U	6.84	9.44	250 U	500 U
	07/29/02	727	6.54	2850	1.00 M	7.44	12.2	250 M	500 M
	10/30/02	511	6.14	1420	1.00 M	11.4	10.0 M	486	500 M
	01/29/03	193	2.50 M	1390	0.500 M	2.66	5.00 M	402	500 M
MW-10	02/01/02	15.5	6.97	3590	10.0 M	7.7	5.89	NA	NA
	04/25/02	16.7	7.65	4470	4.00 U	8.48	9.13	3850	500 U
	11/27/2002*	3.17	1.00 U	3630	2.00 U	2.41	2.49	15200	500 U

TABLE 2
GROUNDWATER ANALYTICAL RESULTS - TPH BTEX
 Kinder Morgan Liquid Terminals
 Linnton Terminal
 Portland, Oregon

Sample ID	Sample Date	Benzene ($\mu\text{g/L}$)	Ethyl-benzene ($\mu\text{g/L}$)	Gasoline ($\mu\text{g/L}$)	Naphthalene ($\mu\text{g/L}$)	Toluene ($\mu\text{g/L}$)	Xylene (total) ($\mu\text{g/L}$)	Diesel ($\mu\text{g/L}$)	Heavy Oil ($\mu\text{g/L}$)
MW-10 DUP MW-12	02/01/02	18	7.83	4010	10.0 U	8.7	6.7	NA	NA
	01/31/02	0.500 U	0.500 U	1320	2.00 U	0.500 U	1.00 U	NA	NA
	04/25/02	1.00 U	1.00 U	1970	4.00 U	1.00 U	2.00 U	4030	500 U
	07/29/02	0.721	0.500 M	1110	2.50 M	0.526	5.60	11100	500 M
	10/29/02	1.00 M	13.6	3630	2.50 M	6.61	3.11	5540	500 M
	01/28/03	0.500 M	0.500 M	1250	3.00 M	0.534	1.00 M	110000	10000 M
MW-12 DUP	07/29/02	0.729	0.500 M	1140	5.00 M	0.534	5.68	5180	500 U
MW-13	01/31/02	109	8.9	6150	10.0 U	6.74	5.00 M	NA	NA
	04/25/02	48.5	9.14	5700	10.0 U	7.56	5.00 U	250 U	500 U
	07/29/02	2.63	2.88	3330	0.100 M	1.6	7.76	2690	500 M
	10/29/02	4.68	2.38	2320	4.00 M	3.35	6.37	2180	762
	01/28/03	2.71	2.56	2220	1.20 M	3.22	6.52	2230	500 M
MW-13 DUP	01/31/02	102	8.7	6110	10.0 U	6.86	5.00 M	NA	NA
MW-14	04/25/02	51.8	8.76	5720	10.0 U	8.62	5.00 U	250 U	500 U
	10/29/02	5.82	2.45	2350	3.00 M	3.10	5.89	2020	1000
	01/28/03	2.35	2.51	2480	1.30 M	3.05	6.26	1880	500 M
	01/31/02	0.500 U	0.500 U	80.0 U	2.00 U	0.500 U	1.00 U	NA	NA
	04/24/02	0.500 U	0.500 U	80.0 M	2.00 U	0.500 U	1.00 U	250 U	500 U
	07/30/02	0.500 M	0.500 M	50.0 M	0.100 M	0.500 M	1.00 M	305 M	610 M
MW-15	10/29/02	0.500 M	0.500 M	80.0 M	0.100 M	0.500 M	1.00 M	250 M	500 M
	01/29/03	0.500 M	0.500 M	80.0 M	0.100 M	0.500 M	1.00 M	250 M	500 M
	01/31/02	0.500 U	0.500 U	80.0 U	2.00 U	0.500 U	1.00 U	NA	NA
	04/24/02	0.500 U	0.500 U	80.0 U	2.00 U	0.500 U	1.00 U	250 U	500 U
	07/30/02	0.500 M	0.500 M	50.0 M	0.100 M	0.500 M	1.00 M	250 M	500 M
	10/29/02	0.500 M	0.500 M	80.0 M	0.100 M	0.500 M	1.00 M	250 M	500 M
MW-16	01/29/03	0.500 M	0.500 M	80.0 M	0.100 M	0.500 M	1.00 M	250 M	500 M
	02/01/02	49.1	4.42	3620	10.0 M	12.6	7.61	NA	NA
	04/25/02	46	2.50 U	3570	10.0 U	14	8.73	4040	1050
	07/30/02	83.6	2.73	1920	2.50 M	14.0	11.0	4740	1000 M
	11/27/2002*	79.9	1.00 U	2000	2.00 U	11.3	3.84	2660	1160
	01/28/03	40.5	4.35	2930	1.80 M	13.4	10.6	30400	17600
MW-16 DUP	07/30/02	79.3	3.31	1950	2.50 M	14.4	13.0	6240	2060
MW-17	01/28/03	34.2	2.50	3500	2.20 M	10.3	10.9	35100	13100
	01/31/02	0.500 U	0.500 U	93.8	2.00 U	0.500 U	1.00 U	NA	NA
	04/24/02	0.500 U	0.500 U	126	2.00 M	0.500 U	1.00 M	360	500 U
	07/30/02	0.500 M	0.702	199	1.00 M	0.500 M	2.72	352	500 M
	10/30/02	0.500 M	0.500 M	80.0 M	1.00 M	0.500 M	1.00 M	250 M	500 M
	01/29/03	0.500 M	0.500 M	80.0 M	0.100 M	0.500 M	1.00 M	250 M	500 M

TABLE 2
GROUNDWATER ANALYTICAL RESULTS - TPH BTEX
 Kinder Morgan Liquid Terminals
 Linnton Terminal
 Portland, Oregon

Sample ID	Sample Date	Benzene (µg/L)	Ethyl- benzene (µg/L)	Gasoline (µg/L)	Naph- thalene (µg/L)	Toluene (µg/L)	Xylene (total) (µg/L)	Diesel (µg/L)	Heavy Oil (µg/L)
MW-18	04/25/02	0.500 U	0.500 U	80.0 U	2.00 U	0.500 U	1.00 U	250 U	500 U
	07/29/02	0.500 M	0.500 M	50.0 M	0.100 M	0.500 M	1.00 M	250 M	500 M
	10/30/02	0.500 M	0.500 M	80.0 M	0.100 M	0.500 M	1.00 M	250 M	500 M
	01/29/03	0.500 M	0.500 M	80.0 M	0.100 M	0.500 M	1.00 M	250 M	500 M
MW-18 DUP	04/25/02	0.500 U	0.500 U	80.0 M	2.00 U	0.500 U	1.00 U	250 U	500 U
RW-1	11/26/2002*	7.68	16.1	3930	145	2.00 U	15.5	998000	45000
RW-2	11/26/2002*	30.3	21.0	1690	46.7	1.00 U	16.7	243000	57700
RW-3	11/26/2002*	3.80	7.51	1430	9.04	1.00 U	3.00 U	678000	50000 U
Trip Blank	04/24/02	0.500 U	0.500 U	80.0 U	2.00 U	0.500 U	1.00 U	NA	NA
	04/25/02	0.500 U	0.500 U	80.0 U	2.00 U	0.500 U	1.00 U	NA	NA
	07/29/02	0.500 M	0.500 M	50.0 M	NA	0.500 M	1.00 M	NA	NA
	10/29/02	0.500 M	0.500 M	NA	NA	0.500 M	1.00 M	NA	NA

NOTES:

Gasoline Range Hydrocarbons analyzed by NW TPH-Gx Method

Diesel and Heavy Oil Range Hydrocarbons analyzed by NW TPH-DX Method

Benzene, Toluene, Ethylbenzene, Xylene, and Naphthalene (BTEX/N) analyzed by USEPA Method 8021B

µg/l = micrograms per liter

Lab reported Diesel and Heavy Oil in mg/l

NA = Not Analyzed

J = Estimated Value

U = Analyte included in the analysis but not detected above laboratory method detection limits (MDLs)

M = Analyte included in the analysis but not detected above laboratory method reporting limits (MRLs)

Bold Face Font = Analyte detected above the MRLs

* = Additional RI Sampling

TABLE 3
GROUNDWATER ANALYTICAL PAH's
 Kinder Morgan Liquid Terminals
 Linnton Terminal
 Portland, Oregon

Sample ID	Sample Date	Acenaphthene (µg/L)	Acenaphthy/ene (µg/L)	Anthracene (µg/L)	Benzo(a)anthracene (µg/L)	Benzo(a)pyrene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(ghi)perylene (µg/L)	Benzo(k)fluoranthene (µg/L)	Chrysene (µg/L)	Dibenzo(a,h)anthracene (µg/L)	Fluoranthene (µg/L)	Fluorene (µg/L)	Indeno(1,2,3-cd)pyrene (µg/L)	Naphthalene (µg/L)	Phenanthrene (µg/L)	Pyrene (µg/L)
MW-1	02/01/02	5.00 U	2.50 U	2.74	0.500 U	0.500 U	0.500 U	0.500 U	0.500 M	1.00 U	0.500 U	20.9	0.500 U	12.5 U	13.3	2.23	
	11/26/2002*	2.26	0.500 U	1.98	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	0.500 U	13.9	0.500 U	5.00 U	11.0	1.48	
	01/29/03	10.0 M	5.00 M	10.8	0.284	0.394	0.322	0.200 M	0.266	1.46	0.400 M	5.00 M	60.6	0.200 M	20.0 M	54.7	6.98
MW-2	11/26/2002*	4.44	1.00 U	2.72	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	1.16	14.8	1.00 U	21.1	15.4	2.24
MW-3	11/26/2002*	10.0 U	10.0 U	3.99	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	0.500 U	33.0 U	0.500 U	10.0 U	22.1	2.98	
MW-4	02/01/02	0.500 U	0.100 U	0.257	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	2.32	0.100 U	1.00 U	0.725	0.17	
	04/25/02	0.500 U	0.100 U	0.368	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	2.21	0.100 U	0.500 U	0.618	0.192	
	07/29/02	0.405	0.100 M	0.500 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	1.75	0.100 M	0.500 M	0.500 M	0.313	
	10/30/02	2.50 M	0.500 M	4.26	0.500 M	0.500 M	0.500 M	0.500 M	0.500 M	1.00 M	0.500 M	8.00 M	0.500 M	3.50 M	7.64	3.09	
	01/29/03	0.800 M	0.400 M	0.860	0.400 M	0.400 M	0.400 M	0.400 M	0.400 M	0.800 M	0.400 M	2.97	0.400 M	1.20 M	2.23	0.600	
MW-4-DUP	10/30/02	1.50 M	0.500 M	2.18	0.500 M	0.500 M	0.500 M	0.500 M	0.500 M	1.00 M	0.5	4.36	0.500 M	2.00 M	3.60	1.61	
MW-5	02/01/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	
	04/24/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	0.100 M	0.100 U	0.100 U	
	01/28/03	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	
MW-6	02/01/02	0.153	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.131	0.100 U	5.00 U	0.225	0.100 U
	04/24/02	0.151	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.101	0.100 U	2.00 U	0.214	0.100 U
	01/29/03	0.129	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.200 M	0.100 M	2.00 M	0.128	0.100 M
MW-7	01/31/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	
	04/24/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	
	07/29/02	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	
	10/29/02	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	
	01/28/03	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	

TABLE 3
GROUNDWATER ANALYTICAL PAH's
Kinder Morgan Liquid Terminals
Linnton Terminal
Portland, Oregon

Sample ID	Sample Date	Acenaphthene ($\mu\text{g/L}$)	Acenaphthylene ($\mu\text{g/L}$)	Anthracene ($\mu\text{g/L}$)	Benz(a)anthracene ($\mu\text{g/L}$)	Benzo(a)pyrene ($\mu\text{g/L}$)	Benzo(b)fluoranthene ($\mu\text{g/L}$)	Benzo(g,h,i)perylene ($\mu\text{g/L}$)	Benzo(k)fluoranthene ($\mu\text{g/L}$)	Chrysene ($\mu\text{g/L}$)	Dibenzo(a,h)anthracene ($\mu\text{g/L}$)	Fluoranthene ($\mu\text{g/L}$)	Fluorene ($\mu\text{g/L}$)	Indeno(1,2,3-cd)pyrene ($\mu\text{g/L}$)	Naphthalene ($\mu\text{g/L}$)	Phenanthrene ($\mu\text{g/L}$)	Pyrene ($\mu\text{g/L}$)
MW-8	02/01/02	18.9	2.00 U	0.759	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	1.03	12.4	0.100 U	2.56	11.2	1.19	
	04/25/02	40.5	0.500 M	0.606	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 U	1.69	18.6	0.100 U	8.36	7.73	1.72	
	07/29/02	57.1	0.100 M	0.629	0.117	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	1.36	22.3	0.100 M	41.0	7.78	2.34	
	10/30/02	90.3	1.00 M	1.31	0.568	0.723	0.529	0.675	0.500 M	0.733	1.00 M	2.65	43.4	0.500 M	0.772	9.42	3.34
	01/29/03	18.9	1.00 M	0.429	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.697	9.94	0.100 M	5.89	4.72	0.798	
MW-9	02/01/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	0.500 U	0.100 U	0.100 M	
	04/25/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	1.00 U	0.100 U	0.100 U	
	07/29/02	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	1.00 M	0.100 M	0.100 M	
	10/30/02	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	1.00 M	0.100 M	0.100 M	
	01/29/03	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.500 M	0.100 M	0.100 M	
MW-10	02/01/02	7.81	0.100 U	0.304	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.447	5.21	0.100 U	5.00 U	1.41	0.512	
	04/25/02	4.39	0.100 U	0.367	0.123	0.108	0.100 M	0.100 M	0.100 M	0.142	0.200 U	0.784	3.21	0.100 M	2.50 U	0.903	0.933
	11/27/2002*	10.8	0.500 U	1.56	0.500 U	0.678	0.500 U	0.695	0.500 U	0.605	1.00 U	1.77	10.7	0.500 U	17.0 U	9.62	2.20
MW-10-Dup	02/01/02	6.6	0.500 U	0.228	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.387	4.19	0.100 U	5.00 U	0.557	0.451	
MW-12	01/31/02	2.05	0.500 U	0.212	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	4.34	0.100 U	2.50 U	4.11	0.100 M	
	04/25/02	1.52	0.100 U	0.349	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 M	3.32	0.100 U	1.00 U	4.55	0.143	
	07/29/02	5.00 M	0.500 M	0.593	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.500 M	5.33	0.100 M	2.50 M	7.29	0.260	
	10/29/02	1.72	0.100 M	0.353	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.500 M	3.89	0.100 M	2.50 M	5.97	0.123	
	01/28/03	3.33	0.500 M	1.01	0.500 M	0.500 M	0.500 M	0.500 M	0.500 M	1.00 M	0.500 M	6.96	0.500 M	3.00 M	10.5	0.566	
MW-12-Dup	07/29/02	2.44	0.500 M	0.655	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	4.67	0.100 M	5.00 M	5.23	0.293	
MW-13	01/31/02	1.62	0.100 U	0.16	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 M	3.23	0.100 U	5.00 U	2.61	0.100 M	
	04/25/02	1.25	0.100 U	0.203	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 M	2.75	0.100 U	2.00 U	2.63	0.100 M	
	07/29/02	0.858	0.100 M	0.172	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	1.90	0.100 M	0.100 M	3.61	0.157	
	10/29/02	1.31	0.500 M	1.00 M	0.500 M	0.500 M	0.500 M	0.500 M	0.500 M	0.500 M	1.00 M	0.500 M	2.75	0.500 M	4.00 M	4.91	0.515
	01/28/03	0.596	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	1.15	0.100 M	1.20 M	1.13	0.100 M
MW-13 Dup	01/31/02	1.47	0.100 U	0.144	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 M	3.26	0.100 U	2.00 U	3.3	0.100 M

TABLE 3
GROUNDWATER ANALYTICAL PAH's
 Kinder Morgan Liquid Terminals
 Linnton Terminal
 Portland, Oregon

Sample ID	Sample Date	Acenaphthene (µg/L)	Acenaphthylene (µg/L)	Anthracene (µg/L)	Benzo(a)anthracene (µg/L)	Benzo(a)pyrene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(ghi)perylene (µg/L)	Benzo(k)fluoranthene (µg/L)	Chrysene (µg/L)	Dibenzo(a,h)anthracene (µg/L)	Fluoranthene (µg/L)	Fluorene (µg/L)	Indeno(1,2,3-cd)pyrene (µg/L)	Naphthalene (µg/L)	Phenanthrene (µg/L)	Pyrene (µg/L)
	04/25/02	1.36	0.100 U	0.138	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 M	2.73	0.100 U	2.00 U	2.74	0.100 M	
	10/29/02	0.802	0.100 M	0.250 M	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 M	1.68	0.100 M	3.00 M	2.42	0.121	
	01/28/03	0.710	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	1.40 M	0.100 M	1.30 M	1.11	0.100 M	
MW-14	01/31/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 M	
	04/24/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	
	07/30/02	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	
	10/29/02	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	
	01/29/03	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	
MW-15	01/31/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	
	04/24/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	
	07/30/02	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	
	10/29/02	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	
	01/29/03	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	
MW-16	02/01/02	1.4	0.200 U	0.200 M	0.200 M	0.200 M	0.200 M	0.200 U	0.200 U	0.200 M	0.400 U	0.358	2.97	0.200 U	4.00 U	1.71	0.342
	04/25/02	1.16	0.100 U	0.256	0.255	0.218	0.208	0.158	0.183	0.273	0.200 U	0.642	2.84	0.138	1.50 U	2.49	0.626
	07/30/02	1.34	0.200 M	0.409	0.312	0.231	0.266	0.200 M	0.200 M	0.476	0.400 M	0.676	2.65	0.200 M	2.50 M	2.97	0.942
	11/27/2002*	4.12	1.00 U	2.41	1.27	1.47	2.35	1.00 U	1.00 U	3.15	2.00 U	2.99	11.9	1.00 U	7.40 U	13.5	3.27
	01/28/03	1.24	0.200 M	0.200 M	0.200 M	0.200 M	0.200 M	0.200 M	0.200 M	0.400 M	0.200 M	2.37	0.200 M	1.80 M	1.74	0.235	
MW-16-Dup	07/30/02	1.36	0.200 M	0.367	0.233	0.200 M	0.200 M	0.200 M	0.200 M	0.374	0.400 M	0.567	2.50	0.200 M	2.50 M	2.80	0.685
	01/28/03	1.33	0.200 M	0.242	0.200 M	0.200 M	0.200 M	0.200 M	0.200 M	0.228	0.400 M	0.298	2.73	0.200 M	2.20 M	2.38	0.368
MW-17	01/31/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.214	0.100 U	0.200 U	0.301	0.100 U
	04/24/02	0.100 U	0.100 U	0.2100 M	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	0.100 U	0.187	0.100 U
	07/30/02	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	
	10/30/02	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	
	01/29/03	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	

TABLE 3
GROUNDWATER ANALYTICAL PAH's
 Kinder Morgan Liquid Terminals
 Linnton Terminal
 Portland, Oregon

Sample ID	Sample Date	Acenaphthene ($\mu\text{g/L}$)	Acenaphthyrene ($\mu\text{g/L}$)	Anthracene ($\mu\text{g/L}$)	Benzo(a)anthracene ($\mu\text{g/L}$)	Benzo(a)pyrene ($\mu\text{g/L}$)	Benzo(b)fluoranthene ($\mu\text{g/L}$)	Benzo(ghi)perylene ($\mu\text{g/L}$)	Benzo(k)fluoranthene ($\mu\text{g/L}$)	Chrysene ($\mu\text{g/L}$)	Dibenzo(a,h)anthracene ($\mu\text{g/L}$)	Fluoranthene ($\mu\text{g/L}$)	Fluorene ($\mu\text{g/L}$)	Indeno(1,2,3-cd)pyrene ($\mu\text{g/L}$)	Naphthalene ($\mu\text{g/L}$)	Phenanthrene ($\mu\text{g/L}$)	Pyrene ($\mu\text{g/L}$)
MW-18	04/25/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	
	07/29/02	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M
	10/30/02	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M
	01/29/03	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.200 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M	0.100 M
MW-18 Dup	04/25/02	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.200 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
RW-1	11/26/02*	30.0 U	25.0 U	14.3	1.41	1.00 U	1.70	1.00 U	1.00 U	4.19	2.00 U	4.57	130 U	1.00 U	224	87.0	16.1
RW-2	11/26/02*	6.30	0.100 U	2.42	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	1.83	2.00 U	1.21	14.7	1.00 U	56.2	17.7	1.75
RW-3	11/26/2002*	70.0 U	57.1 U	19.5	2.48	2.02	1.43	1.14 U	1.45	5.45	2.29 U	6.02	186 U	1.14 U	100 U	231	18.8

NOTES:

Polynuclear Aromatic Compounds (PAHs) analyzed by USEPA Method 8270M-SIM

$\mu\text{g/L}$ = micrograms per liter

J = Estimated Value

U = Analyte included in the analysis but not detected above laboratory method detection limits (MDLs)

M = Analyte included in the analysis but not detected above laboratory method reporting limits (MRLs)

Bold Face Font = Analyte detected above the MRLs

* = Additional RI Sampling

TABLE 4
GROUNDWATER ANALYTICAL - TOTAL METALS
Kinder Morgan Liquid Terminals
Linnton Terminal
Portland, Oregon

Sample ID	Sample Date	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Lead (mg/L)	Mercury (mg/L)	Selenium (mg/L)	Silver (mg/L)	Zinc (mg/L)
MW-1	02/01/02	0.0051	0.137J	0.00100 U	0.0019	0.0035	0.00100 M	0.000200 U	0.00100 M	0.00100 U	0.00863
	11/26/2002*	0.00576	0.192	0.00100 U	0.00638	0.0165	0.00580	0.000200 U	0.00111	0.00100 U	0.0278
	01/29/03	0.00408	0.142	0.00100 M	0.00216	0.00657	0.00293	0.000400 M	0.00100 M	0.00100 M	0.0113
MW-2	11/26/2002*	0.0410	0.119	0.00100 U	0.00132	0.00345	0.00497	0.000200 U	0.00100 U	0.00100 U	0.00770
MW-3	11/26/2002*	0.0196	0.152	0.00100 U	0.00303	0.00599	0.00247	0.000200 U	0.00140	0.00100 U	0.0144
MW-4	02/01/02	0.00554	0.0916	0.00100 U	0.00100 M	0.00248	0.00100 M	0.000200 U	0.00113	0.00100 U	0.00500 M
	04/25/02	NA	NA	NA	NA	NA	0.00100 U	NA	NA	NA	NA
	07/29/02	NA	NA	NA	NA	NA	0.00100 M	NA	NA	NA	NA
	10/30/02	NA	NA	NA	NA	NA	0.00438	NA	NA	NA	NA
	01/29/03	0.00503	0.0791	0.00100 M	0.00102	0.00200 M	0.00100 M	0.000200 M	0.00100 M	0.00100 M	0.00500 M
MW-4-DUP	10/30/02	NA	NA	NA	NA	NA	0.00607	NA	NA	NA	NA
MW-5	02/01/02	0.00342	0.14	0.00100 M	0.00611	0.0161	0.00809	0.000200 U	0.00100 M	0.00100 U	0.0356
	04/24/02	NA	NA	NA	NA	NA	0.00976	NA	NA	NA	NA
	07/30/02	NA	NA	NA	NA	NA	0.00722	NA	NA	NA	NA
	01/28/03	0.00246	0.0801	0.00100 M	0.00316	0.00675	0.00475	0.000800 M	0.00100 M	0.00100 M	0.0222
MW-6	02/01/02	0.0403	0.204	0.00189	0.00163	0.0069	0.00265	0.000200 U	0.00100 M	0.00100 U	0.0486
	04/24/02	NA	NA	NA	NA	NA	0.00143	NA	NA	NA	NA
	01/29/03	0.0465	0.182	0.00100 M	0.00253	0.00724	0.00651	0.000200 M	0.00100 M	0.00100 M	0.0617
MW-7	01/31/02	0.00339	0.0786	0.00100 M	0.00294	0.00673	0.00214	0.000200 U	0.00100 M	0.00100 U	0.014
	04/24/02	NA	NA	NA	NA	NA	0.00240	NA	NA	NA	NA
	07/29/02	NA	NA	NA	NA	NA	0.00735	NA	NA	NA	NA
	10/29/02	NA	NA	NA	NA	NA	0.0346	NA	NA	NA	NA
	01/28/03	0.00161	0.0574	0.00100 M	0.00100 M	0.00318	0.00106	0.000200 M	0.00100 M	0.00100 M	0.00763
MW-8	02/01/02	0.00884	0.0396	0.00100 M	0.00100 M	0.00100 M	0.01160	0.000200 U	0.00100 M	0.00100 U	0.00500 M
	04/25/02	NA	NA	NA	NA	NA	0.00761	NA	NA	NA	NA
	07/29/02	NA	NA	NA	NA	NA	0.00510	NA	NA	NA	NA
	10/30/02	NA	NA	NA	NA	NA	0.00495	NA	NA	NA	NA
	01/29/03	0.00530	0.0348	0.00100 M	0.00100 M	0.00200 M	0.0147	0.000200 M	0.00100 M	0.00100 M	0.00979

TABLE 4
GROUNDWATER ANALYTICAL - TOTAL METALS
 Kinder Morgan Liquid Terminals
 Linnton Terminal
 Portland, Oregon

Sample ID	Sample Date	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Lead (mg/L)	Mercury (mg/L)	Selenium (mg/L)	Silver (mg/L)	Zinc (mg/L)
MW-9	02/01/02	0.0384	0.288	0.00100 M	0.0228	0.048	0.02390	0.000200 U	0.00133	0.00100 M	0.106
	04/25/02	NA	NA	NA	NA	NA	0.00102	NA	NA	NA	NA
	07/29/02	NA	NA	NA	NA	NA	0.03840	NA	NA	NA	NA
	10/30/02	NA	NA	NA	NA	NA	0.0802	NA	NA	NA	NA
	01/29/03	0.0308	0.0806	0.00100 M	0.00265	0.00462	0.00273	0.000200 M	0.00100 M	0.00100 M	0.0162
MW-10	02/01/02	0.00576	0.0204	0.00100 U	0.00149	0.00200 M	0.00308	0.000200 U	0.00100 M	0.00100 U	0.00563
	04/25/02	NA	NA	NA	NA	NA	0.00648	NA	NA	NA	NA
	11/27/2002*	0.0187	0.553	0.00286	0.107	0.167	0.153	0.000200 U	0.00208	0.00122	0.465
MW-10-Dup	02/01/02	0.00465	0.0128	0.00100 U	0.00103	0.00200 M	0.00226	0.000200 U	0.00100 U	0.00100 U	0.00500 M
MW-12	01/31/02	0.0594	0.0804	0.00100 U	0.00138	0.00200 M	0.00175	0.000200 U	0.00100 M	0.00100 U	0.00500 M
	04/25/02	NA	NA	NA	NA	NA	0.00444	NA	NA	NA	NA
	07/29/02	NA	NA	NA	NA	NA	0.00860	NA	NA	NA	NA
	10/29/02	NA	NA	NA	NA	NA	0.0208	NA	NA	NA	NA
	01/28/03	0.0576	0.0886	0.00100 M	0.00337	0.00396	0.00618	0.000200 M	0.00100 M	0.00100 M	0.0115
MW-12-Dup	07/29/02	NA	NA	NA	NA	NA	0.00768	NA	NA	NA	NA
MW-13	01/31/02	0.0551	0.254	0.00100 U	0.0156	0.0259	0.0138	0.000200 U	0.00100 M	0.00100 U	0.0648
	04/25/02	NA	NA	NA	NA	NA	0.0109	NA	NA	NA	NA
	07/29/02	NA	NA	NA	NA	NA	0.4170	NA	NA	NA	NA
	10/29/02	NA	NA	NA	NA	NA	2.59	NA	NA	NA	NA
	01/28/03	0.0608	0.0951	0.00100 M	0.00280	0.00422	0.00451	0.000200 M	0.00100 M	0.00100 M	0.0233
MW-13 Dup	01/31/02	0.0543	0.266	0.00100 U	0.0177	0.0279	0.0145	0.000200 U	0.00100 M	0.00100 M	0.0764
	04/25/02	NA	NA	NA	NA	NA	0.0150	NA	NA	NA	NA
	10/29/02	NA	NA	NA	NA	NA	2.02	NA	NA	NA	NA
	01/28/03	0.0608	0.0949	0.00100 M	0.00299	0.00361	0.00409	0.000200 M	0.00100 M	0.00100 M	0.0133

TABLE 4
GROUNDWATER ANALYTICAL - TOTAL METALS
 Kinder Morgan Liquid Terminals
 Linnton Terminal
 Portland, Oregon

Sample ID	Sample Date	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Lead (mg/L)	Mercury (mg/L)	Selenium (mg/L)	Silver (mg/L)	Zinc (mg/L)
MW-14	01/31/02	0.0165	0.456	0.00100 M	0.0402	0.078	0.0332	0.000200 U	0.00100 M	0.00100 M	0.199
	04/24/02	NA	NA	NA	NA	NA	0.0140	NA	NA	NA	NA
	07/30/02	NA	NA	NA	NA	NA	0.2520	NA	NA	NA	NA
	10/29/02	NA	NA	NA	NA	NA	0.103	NA	NA	NA	NA
	01/29/03	0.0149	0.341	0.00100 M	0.0364	0.0604	0.0269	0.000200 M	0.00100 M	0.00100 M	0.168
MW-15	01/31/02	0.00951	0.262	0.00100 M	0.0224	0.0355	0.0133	0.000200 U	0.0011	0.00100 U	0.0936
	04/24/02	NA	NA	NA	NA	NA	0.0754	NA	NA	NA	NA
	07/30/02	NA	NA	NA	NA	NA	0.2270	NA	NA	NA	NA
	10/29/02	NA	NA	NA	NA	NA	0.0190	NA	NA	NA	NA
	01/29/03	0.0113	0.299	0.00100 M	0.0329	0.0464	0.0197	0.000200 M	0.00100 M	0.00100 M	0.142
MW-16	02/01/02	0.116	0.354	0.00100 M	0.0465	0.0508	0.0312	0.000200 U	0.00100 M	0.00100 M	0.144
	04/25/02	NA	NA	NA	NA	NA	0.00998	NA	NA	NA	NA
	07/30/02	NA	NA	NA	NA	NA	0.120	NA	NA	NA	NA
	11/27/2002*	0.120	3.69	0.00100 U	0.610	0.546	0.323	0.000265	0.00100 U	0.00100 U	1.40
	1/28/2003	0.0908	0.104	0.00100 M	0.00704	0.00652	0.00702	0.000400 M	0.00100 M	0.00100 M	0.0216
MW-16-Dup	07/30/02	NA	NA	NA	NA	NA	0.126	NA	NA	NA	NA
	01/28/03	0.0891	0.135	0.00100 M	0.0121	0.0116	0.0106	0.000400 M	0.00100 M	0.00100 M	0.0367
MW-17	01/31/02	0.00574	0.209	0.00100 U	0.00604	0.00954	0.00374	0.000200 U	0.00100 U	0.00100 U	0.0242
	04/24/02	NA	NA	NA	NA	NA	0.0106	NA	NA	NA	NA
	07/30/02	NA	NA	NA	NA	NA	0.0801	NA	NA	NA	NA
	10/30/02	NA	NA	NA	NA	NA	0.115	NA	NA	NA	NA
	01/29/03	0.00858	0.161	0.00100 M	0.0116	0.0177	0.0106	0.000200 M	0.00100 M	0.00100 M	0.0558
MW-18	04/25/02	NA	NA	NA	NA	NA	0.0362	NA	NA	NA	NA
	07/29/02	NA	NA	NA	NA	NA	0.0094	NA	NA	NA	NA
	10/30/02	NA	NA	NA	NA	NA	0.0460	NA	NA	NA	NA
	01/29/03	0.00255	0.0930	0.00100 M	0.00340	0.00593	0.00269	0.000200 M	0.00100 M	0.00100 M	0.0178
MW-18 Dup	04/25/02	NA	NA	NA	NA	NA	0.0294	NA	NA	NA	NA

TABLE 4
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Kinder Morgan Liquid Terminals
Linnton Terminal
Portland, Oregon

Sample ID	Sample Date	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Lead (mg/L)	Mercury (mg/L)	Selenium (mg/L)	Silver (mg/L)	Zinc (mg/L)
RW-1	11/26/2002*	0.0168	0.183	0.00100 U	0.00852	0.01990	0.00798	0.000200 U	0.00100 U	0.00100 U	0.0868
RW-2	11/26/2002*	0.00760	0.206	0.00385	0.0104	0.0226	0.0105	0.000200 U	0.00100 U	0.00100 U	0.0795
RW-3	11/26/2002*	0.00444	0.132	0.00100 U	0.00276	0.00711	0.00270	0.000200 U	0.00133	0.00100 U	0.0129

NOTES:

Total Metals analyzed by USEPA Method 6000/7000 Series Method

mg/l = Milligrams per liter

NA = Not Analyzed

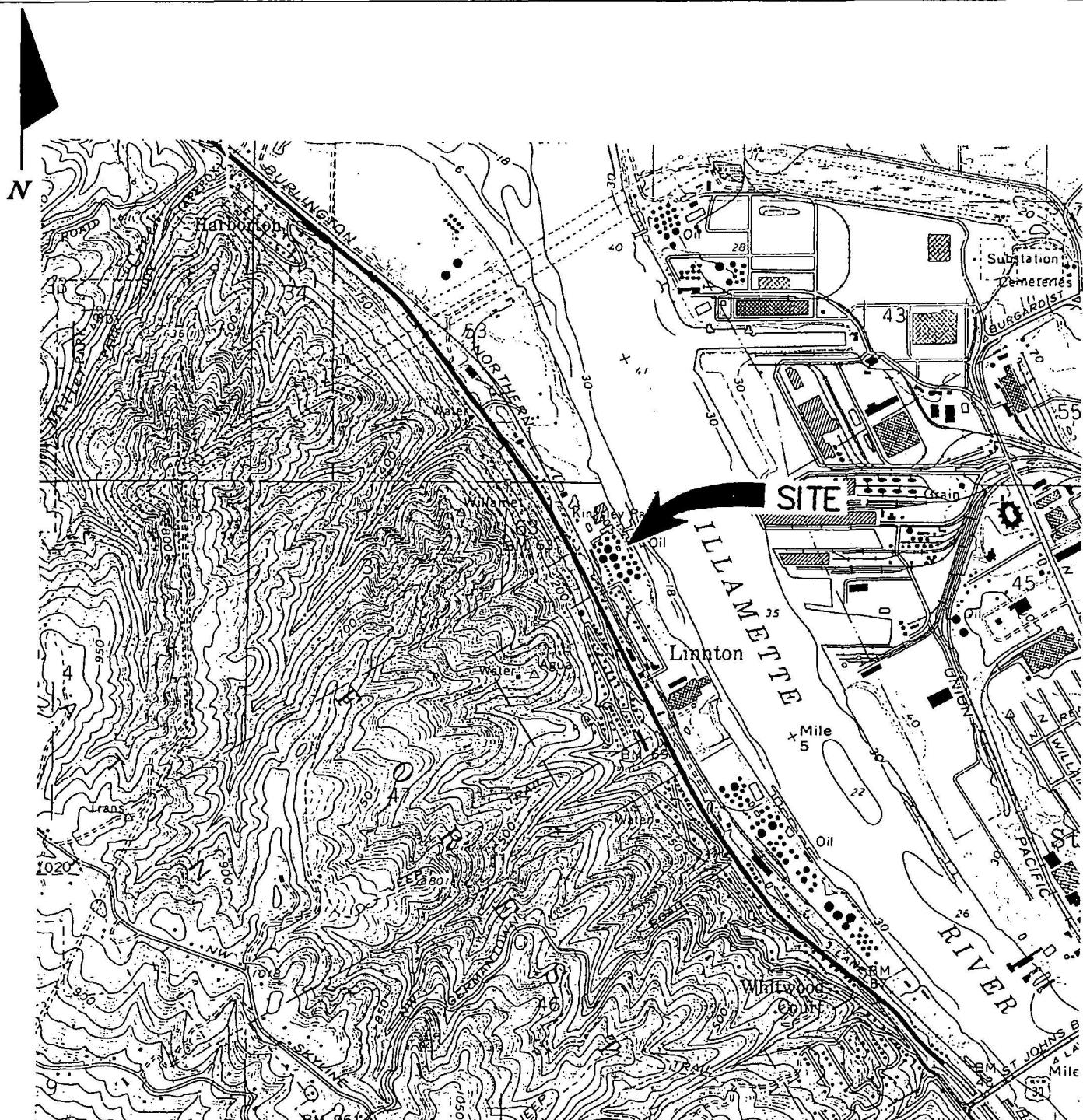
J = Estimated Value

U = Analyte included in the analysis but not detected above laboratory method detection limits (MDLs)

M = Analyte included in the analysis but not detected above laboratory method reporting limits (MRLs)

Bold Face Font = Analyte detected above the MRLs

* = Additional RI Sampling



REFERENCES

USGS 7.5 Minute Topographic Map
Linniton, Oregon, 1961
Photorevised 1984

SCALE: 1:25,000



TITLE		Site Location Map	
Kinder Morgan Liquid Terminals, LLC Linniton Terminal 11400 NW St. Helens Road Portland, Oregon			
DATE 3/19/03	PROJECT B30-01G	FIGURE 1	

